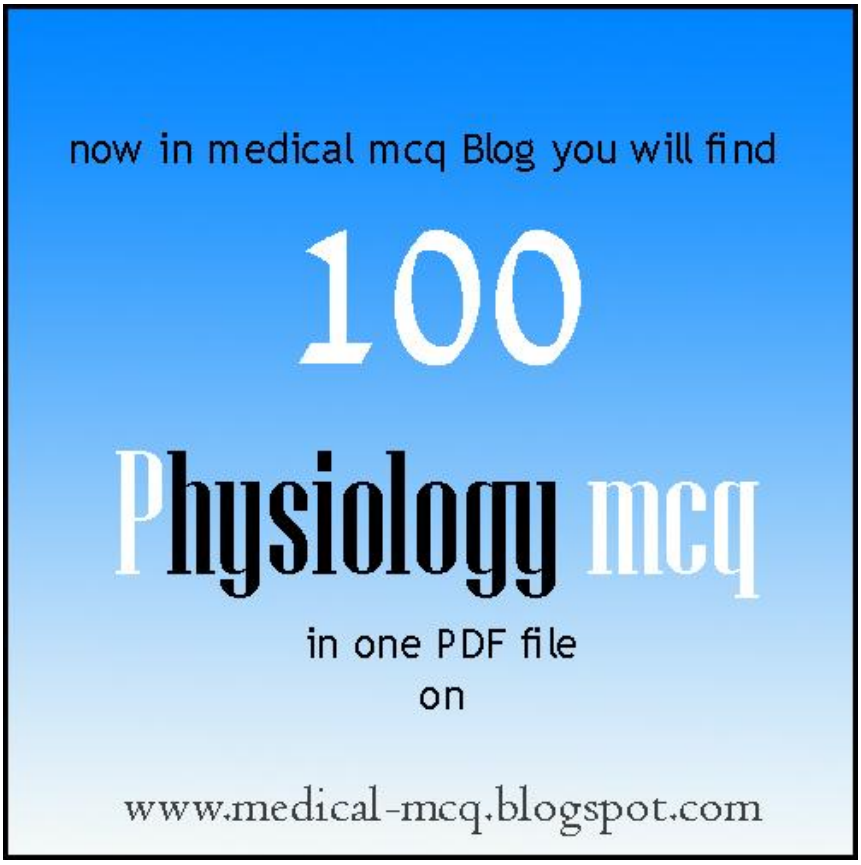
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PHYSIOLOGY

Mark the most appropriate choice in each of the following multiple choice questions (MCQ's) by placing a circle around the letters a, b, c, or d.There is ONE correct choice in each question.

1: The syncitial function of the heart depends on the presence of:

a. gap junctions and intercalated discs.
b. light and dark filaments.
c. Z- lines.
d. actin and tropomyosin.

2: Cardiac muscle cannot be tetanized because of:

a. the presence of high intracellular calcium ions.
b. the presence of high intracellular potassium ions.
c. cardiac muscle is absolutely refractory during part of cardiac cycle.
d. cardiac muscle is absolutely refractory during most of cardiac cycle.

3: The A-V delay in cardiac depolarization is necessary for:

a. atrial filling phase.
b. ventricular filling phase.
c. A and B.
d. none of the above.

4: Normal cardiac axis lies between the degrees:

a. -10 to + 110.
b. -20 to + 110.
c. -30 to + 110.
d. -40 to + 110.

5: Proper connection of ECG leads gives:

a. negative ECG wave in lead aVR.
b. negative ECG wave in lead aVL.
c. negative ECG wave in lead aVF.
d. b and c.

6: The maximum duration of normal QRS wave is:

a. 0.01 second.
b. 0.02 second.
c. 0.1 second.
d. 0.2 second.

7: Dilation of right atrium:

a. increases heart rate.
b. decreases heart rate.
c. has no relation to heart rate.
d. decreases cardiac contractility.

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8: Negative inotropic effect can result from:

a. parasympathetic stimulation.
b. hypoxia.
c. acidosis.
d. any of the above.

9: Regarding vasomotor centre(VMC):

a. sensory area is located in tractus solitarious.
b. input from cranial nerves IX and X.
c. output controls vasoconstrictor and vasodilator areas.
d. all of the above.

10: Capillary fluid shift is one of the :

a. long term regulation of tissue blood flow.
b. short term regulation of tissue blood flow.
c. short term regulation of arterial blood pressure.
d. long term regulation of arterial blood pressure.

11: Respiratory zone starts with:

a. terminal bronchiole.
b. alveolar duct.
c. alveolar sacs.
d. none of the above.

12: contraction of external intercostal muscles:

a. elevate the rib cage.
b. depress the rib cage.
c.decrease chest size.
d. none of the above.

13: The following lung function parameters could be measured by spirometry <u>except</u> :

a. vital capacity.
b. inspiratory reserve volume.
c. expirartory reserve volume.
d. total lung capacity.

14: In dead space, the ventilation / perfusion ratio :

a. not affected.
b. sometimes affected.
c. increases.
d. decreases.

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15: Pleural pressure is:

a. always positive.
b. equal to atmospheric pressure.
c.higher than mouth pressure.
d. always negative.

16: Hypercapnia affects respiration primarily by stimulating the:

a. carotid and aortic bodies.
b. ventral respiratory centre.
c. Central (medullary) chemoreceptors.
d. Arterial baroreceptors.

17: Which of the following gases has greater diffusing capacity across cell membranes?

a. oxygen.
b. carbon dioxide.
c. helium.
d. nitrogen .

18: During ventilation-perfusion coupling, bronchioles respond to changes in:

a.alveolar PO2
b. alveolar PCO2.
c.arterial pH changes.
d. all of the above.

19: Regarding the O2-Hb dissociation curve:

a.higher P50 indicates higher affinity of Hb for O2.
b.higher P50 indicates lower affinity of Hb for O2.
c. P50 is not related to affinity of Hb for O2.
d.none of the above.

20: The % CO2 transported in blood as bicarbonate is about:

a.: 7%.
b.. 23%.
c. 70%.
d. 98.5%

21: During chloride shift, chloride ions are exchanged with:

a.sodium ions.
b.potassium ions.
c.hydrogen ions.
d. Bicarbonate ions.

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22.Bleeding from a small cut in the skin:

a.is normally diminished by local vascular spasm.
b.ceases within 2-6 minutes in normal people.
c.is prolonged in severe factor VIII deficiency.
d.requires Von Willebrand factor.

23.Stabilization of fibrin requires:

a.activated factor XIII .
b.thrombin.
c.calicum ion.
d. all of the above.

24.Related to hemolytic disease of newborn all are false except one , it:

a.affects mainly babies of Rh-positive mothers.
b.ocurrs mainly in babeies who lack D-agglutinogens.
c.can be treated by transfusing the affected baby with Rh-positive blood.
d.can be prevented by injecting mother with anti-D aglutinin just after delivery.

25.Deficiency of factor VIII :

a.increases the bleeding time.
b.is due to an abnormal gene on the Y chromosome.
c.affects the extrinsic rather than the intrinsic pathway for blood coagulation.
d.none of the above.

26.About oncotic pressure all are true except:

a.about 25mmHg at arterial and venous ends of capillary.
b.created mainly by plasma protein albumin.
c.tends to cause osmosis of water outward through the capillary from intravascular to extravascular.
d.normally prevents odema.

27.Hemostasis is associated with:

a.phagocytosis.
b.erythropoiesis.
c.coagulation.
d.agglutionation.

28.Glycosylated Hb (HbA1c):

a.its normal level is 5% of HbA1.
b.glucose is attached to the N-terminal valine of alpha –chain.
c.glucose is attached to the N-terminal valine of beta –chain.
d.is a normal Hb.

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29.The normal total circulating blood volume is 8% of the body weight of:

a.70 Kg.
b.80 Kg.
c.120 Kg.
d..200 Kg.

30.Related to pyrogens all are true except one ,they:

a.are chemically released from RBC.
b. are chemically relesed from WBC.
c.cause fever.
d.inhibit growth of microrganisms.

31.perforins is a process of defence mechansim performed by :

a.T-lymphoctes.
b.B-lymphocytes.
c.plateletes.
d.basophils.

32.The number of the hypothalamic regulatory hormones to the anterior pituitary endocrine cells are:

a.6.
b.4.
c.7.
d.5.

33.Antidiuretic hormone is synthesised in the neurosecretory cells located in the:

a.supraoptic center.
b.paraventricular center.
c.both centers.
d.median eminence.

34.Oxytocin is:

a. synthesised and secreted by the posterior pituitary gland.
b. synthesised and secreted by the supraoptic and paraventricular centers.
c. synthesised and secreyed by the pituitary stalk.
d.synthesised at the supraoptic and paraventricular centers and released at the posterior pituitary gland.

35.Acromegaly is due to hypersecretion of growth hormone during:

a.fetal life.
b.infancy.
c.childhood.
d.adulthood.

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36.Cretinism is due to deficiency of:

a.growth hormone.
b.thyroid hormones.
c.parathyroid hormone.
d.all of the above.

37.Calcitonin is secreted by :

a.thyroid follicular cells.
b.thyroid parafollicular cells.
c.parathyroid cells.
d.none of the above.

38.As regards the action of thyroid hormones:

a.T3 is more potent than T4.
b.T4 is more potent than T3.
c.T3 and T4 have the same potency.
d.T3 and T4 have different mechanism of action at cellular level.

39.Parathormone:

a.increases the reabsorption of phosphates from the renal tubules.
b.decreases the reabsorption of phosphates from the renal tubules.
c.. decreases the reabsorption of calicum from the renal tubules.
d.all of the above.

40.Insulin:

a.stimulates gluconeogenesis.
b. inhibits glycogenesis.
c.stimulates lipolysis.
d.stimulates glycogenesis.

41.The chemical nature of prostaglandins is:

a.carbohydrate.
b.protein.
c.unsaturated fatty acid.
d.glycoprotein.

42.The most important regulator of aldosterone secretion is:

a.ACTH of the pituitary.
b.Na^+ level in the plasma.
c.K^+ level in the plasma.
d.angiotensin II.

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50.Angiotensin II:

a.is a powerful vasodialator agent.
b.causes vasodilatation of the afferent arterioles.
c.inhibits ADH production.
d.stimulates thirst sensation.

51. Renin:

a.is released in overhydration.
b.is released in hydration.
c.converts angiotensin I to angiotensin II.
d.is a lipolytic enzyme.

52.Obligatory water loss:

a.depends on the osmolality of water material and the maximal osmolality of renal medullae.
b.is normally around one liter.
c.is low in hypercatabolic state.
d.is absent during fasting.

53.Clearance of :

a.inulin equals to GFR.
b.glucose equals to GFR.
c.PAH equals to GFR.
d.urea equals to renal blood flow.

54.Atrial natriuretic hormone:

a.is secreted in response to overhydration.
b.is synthesized in the kidney.
c.is a hypertensive agent.
d.stimulates the reabsorption of water from the collecting ducts.

55.Antidiuretic hormone:

a.produces channels [aquaporins] on the luminal side of the membrane.
b.is a vasodilator hormone.
c.is stimulated by drinking coffee.
d.stimulates the synthesis of Na-K ATPase pump.

56.Plasma is cleared of water material when they pass through the two kidneys:

a.sixty times per day.
b.once per day.
c.twice per day.
d.three times per day.

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57.Serum creatinine is:

a.high in pregnancy.
b.low in old age.
c.directly proportional to the GFR.
d..inversely proportional to the GFR.

58.Serum creatinine depends on:

a.a constant production and excretion rate.
b.the reabsorption of creatinine in the proximal tubule.
c.the secretion of creatinine from the collecting ducts.
d.mainly the dietary intake of vegetables.

59.Tubular maximum reabsorption of glucose depends on:

a.filtered amino acids.
b.is much higher than the normal filtered load of glucose.
c.water reabsorption.
d.potassium secretion.

60.Aldosterone :

a.is stimulated by high potassium serum level.
b. is stimulated by low blood volume.
c. is stimulated by angiotensine II.
d.all of the above.

61.Glucose reabsorption occurs:

a.mainly in the collecting ducts.
b.by primary active transport.
c. by secondary active transport
d.only in hypoglycaemia.

62.Sodium :

a.will be excreted in high amount during low sodium intake.
b.secretion occurs in the proximal tubule.
c.reabsorption in the collecting ducts is influenced by ADH.
d.reabsorption in the proximal tubule is 65%.

63.Osmolality of:

a.urine is higher than the osmolality of plasma during summer.
b.the filterate in the distal tubule is around 900 milliosmole /Kg.
c.the filtrate in the proximal tubule is 500 milliosmole/Kg.
d.urine is low in hyercatabolic state.

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64.Urine flow through the ureter from the renal pelvis to urinary bladder by:

a.gravitational force only.
b.peristalsis of ureteral smooth muscle only.
c.both gravtational force and peristalsis.
d.pressure gradient only.

65.Bladder is suitable for urine storage because:

a.it contains rugae in its filling.
b.it contains transitional epithelium.
c.pressure will not rise sharply during storage.
d.all of the above.

66.One of the following tubullar cells secrete potassium in exchange for sodium reabsorption:

a.proximal tubular cells.
b.principal cells of the collecting ducts.
c.intercalated cells of the collecting ducts.
d.cells of the ascending portion of loop of Henle.

67.All the following hormones tend to bring potassium from out side to inside cells except one:

a.aldosterone.
b.insulin.
c.epinephrine.
d.ADH.

68.One of the following receptors is atonic receptor:

a.tactile receptors.
b.thermal receptors.
c.pain receptors.
d.rods.

69.Muscle activity is:

a.. controlled directly by lower motor neurone.
b influenced directly by extra pyramidal tract.
c.decreased by pyramidal tract activity.
d.abolished by cerebellum.

70.Urinary PH:

a.normally is lower than plasma PH.
b.is acidic in vegetarians.
c.is above plasma PH in meat eaters.
d.is due to reabsorption of hydrogen ion by tubular cells.

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71.During metabolic acidosis:

a.hydropgen ion secretion will be increased.
b.potassium secretion will be lowered.
c.there will be reabsorption and synthesis of bicarbonate by tubular cells.
d.all of the above.

72.Action potentials of the intestinal smooth muscle cells are initiated:

a.by slow wave hyperpolarization.
b.by slow wave depolarization.
c.when membrane potential level is minus seventy mv (- 70 mv).
d.when membrane potential level is fifteen mv (15 mv).

73.Concering the enteric nervous system:

a.A predominat excitatory fibers of the myenteric plexus are adrenergic.
b.Meissner's plexus is largely motor in function.
c.Auerbach's plexus is largely motor in function.
d.Auerbach's plexus is largely sensory in function.

74.Effective peristalsis is:

a.not dependent upon the myenteric plexus.
b.not significantly altered by atropine adminstration.
c. increased by atropine adminstration.
d.dependent upon the myenteric plexus.

75.Salivation can be stimulated by:

a.nervous signals arriving in the salivary nuclei from higher centers.
b.parasympathetic nervous signals from the superior and inferior salivary nuclei.
c.smooth objects in the mouth.
d.all of the above.

76.Normal saliva under resting conditions contains:

a.bicarbonate ions concentration between 50 -70 mEq/L.
b.large quantities of sodium and choride ions.
c.small quantities of potassium ions.
d.potassium ions concentration about 15mEq/L.

77.Areas which elicit rhythmic chewing movements in response to stimulation include the:

a.cerebellum ,amygdaloid nuclei as well as hypothalamus.
b.cerebral cortex , amygdaloid nuclei and hypothalamus.
c.cerebral cortex ,but not amygdaloid nuclei and hypothalamus.
d.medulla but neither cerebral cortex nor hypothalamus.

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78.Swallowing (deglutition) involves:

a.voluntary pharyngeal stage.
b. involuntary oral stage
c. voluntary oral stage.
d. voluntary esophageal stage.

79.In second stage of swallowing all are correct except:

a.elevation of the soft palate.
b. elevation of the larynx.
c.is initiated by stimulation of deglutition receptors.
d. is terminated by stimulation of deglutition receptors.

80.Maintained loss of the tenth cranial nerve supplying most of the esophageal muscle is accompained by an immediate loss of:

a.only primary peristalsis waves.
b. only secondary peristalsis waves.
c.both primary and secondary peristalsis waves.
d. recovery of only secondary waves.

81.Increased intragastric pressure is associated with:

a.waves of receptive relaxation of gastroesophageal sphincter.
b.increased gastroesophageal sphincter tone.
c.decreased lower gastroesophageal sphincter tone.
d.no significant changes in gastroesophageal sphincter tone.

82.Inhibition of gastric motility and secretion is due to the following:

a.secretin hormone.
b.GIP.
c.enterogastric reflex.
d.all of the above.

83.Secretin is a hormone that:

a.interact with CCK to inhibit biliary bicarbonate.
b.causes bile salt secretion.
c.acts as an enterogastrone.
d.has growth promoting effects on the intestinal mucosa.

84.The migrating motor complex:

a.is recorded in small and large intestine.
b.occurs randomly throughout the gastrointestinal tract.
c.is observed in the fasting state.
d.is the primary mechanism for moving food throughout the GIT.

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85.The regulation of gastric secretion involves:

a.bile salts.
b.insulin release.
c.ileal receptors.
d.secretions of the duodenum.

86.As the rate of panceatic secretion increases ,one would expect the Cl^- concentration in the secretion to :

a.increase.
b.decrease.
c.remain unchanged.
d.parallel the K^+ concentration.

87.Which of the following is correct regarding bile acids?

a.bile acids are usually present as unconjugated bile acids in bile.
b.above certain concentrations bile acids form macromolecular aggregates called micelles.
c.bile acids play a minor role in solubilizing cholesterol and phospholipids in bile.
d.the ratios between bile acids ,phospholipids and cholesterol in bile vary markedly over broad concentration range.

88.CCK is a hormone that:

a.stimulates gastric emptying.
b.inhibits pancreatic bicarbonate secretion.
c.it is pancreozymic.
d.contracts the sphincter of Oddi.

89.What is the usual cause of megacolon (also called Hirschsprung disease)?

a.infection of the colon.
b.congenital absence of the myenteric plexus in the sigmoid.
c.excessive sympathetic stimulation.
d. excessive parasympathetic stimulation.

90.Approximately what proportion of the bile salts is normally reabsorbed and then resecreted by the liver?

a.5%.
b.15%.
c.95%.
d.40%.

91.The cell body of the preganglionic sympathetic neuron lies in the:

a.ventral horn of the spinal cord.
b. dorsal horn of the spinal cord.
c.spinal nerves.
d.intermediolateral horn of the spinal cord.

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92.Autonomic nervous system is activated by centers located in the:

a.spinal cord.
b.brain stem.
c. hypothalamus.
d.all of the above.

93.Most preganglionic sympathetic neurons are adrenergic except neurons to:

a.intestine.
b.heart.
c.eyes.
d.sweat glands ,pilocrector muscle of hair.

94.Nicotinic receptors are found in:

a.synapses between preganglionic and postganglionic neurons of sympatetic nervous system.
b. synapses between preganglionic and postganglionic neurons of parasympathetic nervous system.
c. synapses between preganglionic and postganglionic neurons of both sympathetic and parasympatetic nervous system.
d.all of the above.

95.During a normal menstrual cycle a large surge of FSH and LH occurs:

a.during menstruation.
b.one or two days before ovulation.
c.one or two days before menstruation.
d.during the days following ovulation.

96.During a normal reproductive life ,the ovaries expell about:

a.45 ova.
b.450 ova.
c.4500 ova.
d.45000ova.

97.Estrogen causes the following except:

a.skin to develop a soft texture.
b.growth of hair on the pubic region.
c.deposition of fat in the breast.
d.enlargement of the external genitalia.

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98.Progesterone can cause the following except:

a.secretory changes in the endometrium.
b.mucosal secretion of fallopian tubes.
c.milk secretion by the alveoli of the breast.
d.development of lobules and alveoli of the breast.

99.Human spermatozoa:

a.are produced at a faster rate when testicular temperature is raised from 35 to 40°C.
b.are motile in the seminiferous tubules.
c.contain no enzymes in their heads.
d.none of the above.

100.Failure of the tests to descend:

a.is associated with failure to produce testesterone.
b.does not interfere with fertility.
c.should be treated by injections of testosterone.
d.is associated with failure to produce spermatozoa.

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